**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

February 28, 2019

To: Julian Hayward, GHD

From: Leslie Patterson, EPA

Subject: Comments on the *Phase I Soil Gas Investigation Activities and Results*, dated December 14, 2018
South Dayton Dump & Landfill, Moraine, Ohio
Administrative Settlement Agreement and Order and Consent V-W-16-C-011

The U.S. Environmental Protection Agency, in consultation with the Ohio Environmental Protection Agency, has reviewed the document referenced above. EPA does not approve the document and requires GHD to revise the document in accordance with the following comments. The revised document is due April 1, 2019. If you have any questions concerning this matter, please contact me at (312) 886-4904.

**Comments**

1. **Figure 1:** Clarify that GP07-09 was not "abandoned" since it was, in fact, not found. Also indicate that GP17-09 and GP18-09 were not found (see Table 1). Alternatively, create a separate label type for the three probes that were not found.

2. **Soil Gas Probe Installation, Page 2, Paragraph 2, Last sentence:** Grammatical error, currently states "…are included listed above are included in Attachment 1."

3. **Soil Gas Probe Installation, Page 2, Paragraph 3, First sentence:** Please revise the statement to reflect that not all soil samples were collected at screen depth. For example, GP28-18 soil sample was 15-16 feet bgs, while the screen was installed from 11-12 ft bgs.

4. **Soil Gas Probe Installation, Page 2, Paragraph 4, First sentence:** This sentence seems incorrect. Table 2 shows that there were no VOC detections in the soil sample from GP34-18.

5. **Soil Gas Probe Installation, Page 3, First full sentence:** The choice of units (mg/kg) is inconsistent with that of Table 2 (µg/kg). Suggest considering a more appropriate cut-off value such as 100 µg/kg or 1,000 µg/kg to be consistent with analytical results. Either would be an appropriate choice because five soil samples have total VOC concentration above 2,000 µg/kg, whereas the other nine samples have total VOC concentrations of less than 30 µg/kg.

6. **Field Parameter Monitoring, Page 3, Second paragraph, Second sentence:** The meaning of "all accessible soil gas probes installed by GHD" is not clear. Does this

mean the 18 new probes installed in 2018 or all accessible probes installed prior to that time in addition to the 2018 probes? If the latter is correct (which is apparent from reading further along), then additional information is needed to describe these probes with reference to Figure 1. Furthermore, there is a reference to EPA multi-level probes at 6 locations (GP-1 and GP-3 to GP-7) totaling 17 soil gas probes, but no detailed information is provided related to the number of probes and associated depth at each location. Suggest adding this to Table 1.

7. **Round 2 – August/September 2018, Page 3, Last paragraph:** Suggest including a footnote to explain the rationale and approach for field-filtering methane. The type of measuring instrument should be specified; it should also be clarified that the "unfiltered" results correspond to total combustible gases, whereas the "filtered" readings correspond to methane only.

8. **Round 2 – August/September 2018, Page 4 and Figures 2 and 3:** It is unfortunate that GP17-09 and GP18-09 were not found by GHD (see comment above) as they have historically contained elevated methane levels (Figure 2). As a result, it is important that the middle paragraph of Page 4 and Figure 3 both indicate that these two locations could not be found and, therefore, could not be screened for methane. Otherwise, the reader may be led to believe that conditions have improved in this area. Consider replacing these probes as an additional recommendation since they were also not sampled for VOCs.

9. **Soil Gas Probe Sampling and Analysis, Page 5:** The report provides an overview of the soil gas VOC sampling and analytical program; however, no field form is provided in the attachments to document that sampling procedures were conducted in accordance with the work plan (canister vacuum, sampling time, helium leak detection checks if any was conducted, controller and canister serial numbers, etc.), the results of the trip blank are not provided, and the result of the ambient air sampling is not clearly indicated (likely sample "Near GP19" presented on Tables 3 and 4).

10. **Soil Gas Probe Sampling and Analysis, Page 5:** The report focuses on the maximum total VOC concentrations in soil gas at two locations (GP07-18 and GP01-18). This metric can be misleading because the focus is only on the maximum value but not the constituents. For example, the maximum concentration measured at GP01-18 is almost entirely the result of chlorobenzene, whereas the maximum concentration measured at GP07-18 is a combination of non-chlorinated VOCs (e.g., N-heptane, toluene, and other BTEX). While these concentrations may be elevated, these results may be less important than those at other locations where the overall concentrations are smaller but individual constituent concentrations largely exceed screening levels. For example, GP31-18 may present a greater concern than the above two locations because the TCE concentration there is 27,000 µg/m3 and largely exceeds screening and action levels. Suggest including individual COC concentrations in addition to total VOC concentrations.

11. **Comparison of Screening Results to Screening Criteria, Page 6:** It would be worth indicating the type of VOCs that contribute to the screening or action level

exceedances. From Tables 3 and 4, it is apparent that some exceedances are driven by chlorinated VOCs, primarily TCE, whereas other exceedance are driven by petroleum VOCs.

12. **Discussion and Recommendations, Page 6, Third sentence:** Grammatical error, "for commercial residential use" should be revised to "for commercial and residential use."

13. **Discussion and Recommendations, Page 6, Third sentence:** The text concludes that because 2018 concentrations are less than 2009, the claim can still be made that a VI issue is not present non responsive. However, the report should clearly assess whether changes in screening levels since 2009 can affect this conclusion. For instance, IRIS revised the toxicity for TCE in September 2011. Even if there was a decrease in the TCE soil gas concentration at GP09-09 since 2009, the current TCE soil gas concentration may be a concern if the screening criterion for TCE has also decreased since 2009. The same comment applies to the crawlspace sampling that was conducted in 2012.

14. **Discussion and Recommendations, Page 7, Bullets at bottom of page:** As noted above, consider replacing GP17-09 and GP18-09 if probes cannot be found. Also, clearly indicate that GP35-18 and GP36-18 will be installed and sampled. The results of these probes should be used for comparison with the concentrations measured at GP07-18 to the northwest (Jim City property), which GHD theorizes are not related to SDD due to their fuel-type signature.